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Deep-Sea Nematodes off Mindanao Island, the Philippines

I. Draconematidae[1]

With 6 Text-figures

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ABSTRACT A new genus is established for two previously unknown species of draconematid nematodes collected from the abyssal depths off Mindanao Island, the Philippines. The new genus is clearly discernible from other known genera of the family Draconematidae by the greater number of anterior ambulatory setae without swollen base. The two new species apparently differ from each other in shape and size of the body and the number of anterior ambulatory setae.

Taxonomic and ecological studies concerning deep-sea nematodes have increased in number in the last decade or so, with increasing interest in deep-sea ecosystems (*e.g.*, taxonomic studies: TIMM, 1970; FREUDENHAMMER, 1970, 1975 a, b; WARWICK, 1973; RIEMANN, 1974; RIEMANN and SCHRAGE, 1977; LAMBSHEAD and PLATT, 1979; GOURBAULT, 1980 a, b, ecological studies: TIETJEN, 1971, 1976). Nevertheless our knowledge is insufficient for a good understanding of deep-sea nematodes; for example, the percentage of undescribed species may well be above 50% in a deep-sea nematode fauna (cf. GERLACH, 1980).

During January and February 1979 a faunistic investigation of deep-sea meiobenthos was conducted on Cruise KH-79-1 of the R. V. Hakuho Maru, Ocean Research Institute, University of Tokyo, in the western North Pacific. As a member partaking this investigation I examined the fauna of nematodes found at Station 5, depths from 5,507 to 5,587 m, off Mindanao Island, the Philippines (Fig. 1). The present paper, as the first report on the deep-sea nematodes of this locality, treats two new species belonging to a new genus of the family Draconematidae FILIPJEV.

Four sediment samples for meiobenthos analysis were collected by a Spade Corer and a fragment of a broken coconut with fibrous coat caught in a beam trawl

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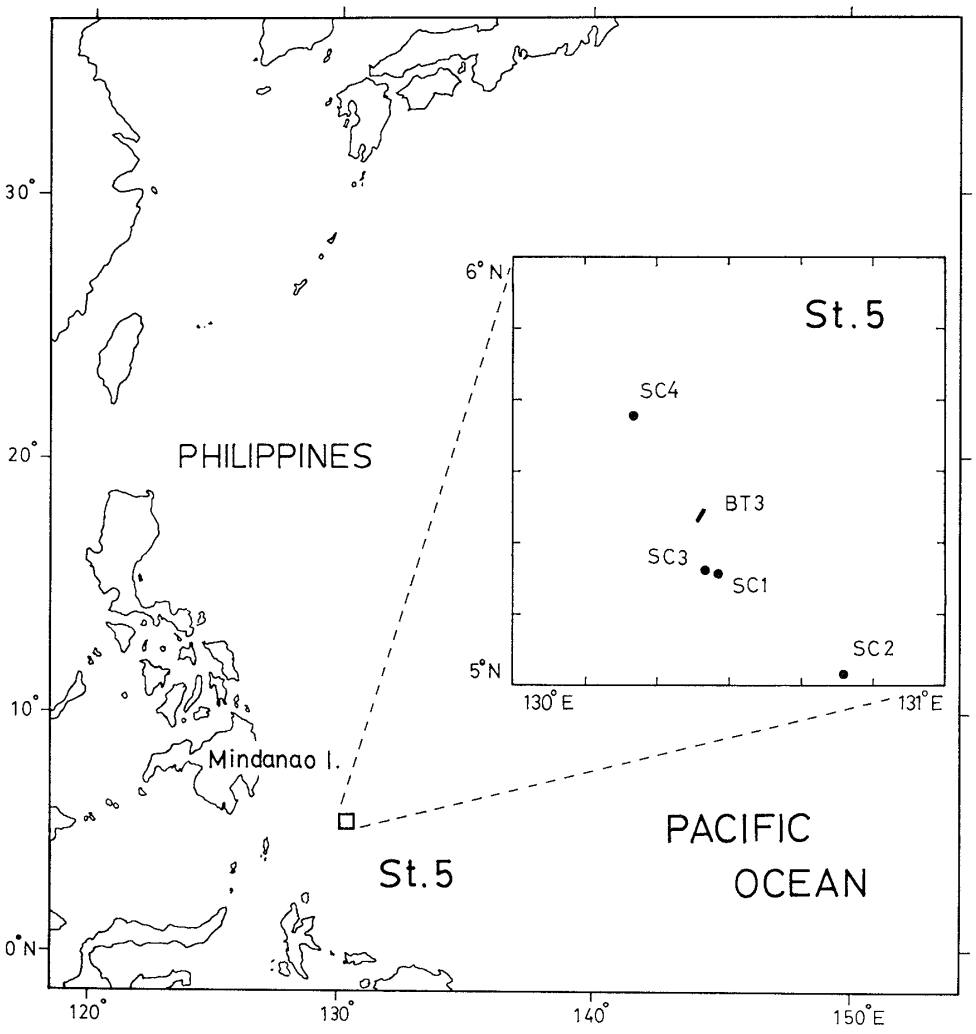

Fig. 1. Map showing sampling stations. SC: Spade Corer, BT: Beam Trawl.

Table 1.
Positions and other details of sampling stations.

Station no.	Date	Position	Depth (m)	Sediment type
5–BT–3	Feb. 8, 1979	05°24.3′N, 130°25.8′E —05°23.1′N, 130°25.3′E	5551 —5549	Red clay with pumice
5–SC–1	Feb. 6, 1979	05°14.9′N, 130°27.9′E	5527	Red clay
5–SC–2	Feb. 7, 1979	05°01.3′N, 130°45.6′E	5507	Red clay
5–SC–3	Feb. 8, 1979	05°15.8′N, 130°27.0′E	5512	Red clay
5–SC–4	Feb. 9, 1979	05°37.3′N, 130°17.0′E	5537	Red clay

was also examined; the outline of the field survey is shown in Table 1. Animals were extracted by means of decanting and sieving method (94 μm mesh-openings), and preserved in 5% neutralized formalin-sea water solution. Nematode specimens

sorted under the stereoscopic microscope were mounted in glycerine for examination. The type specimens are deposited in the Museum of the Zoological Institute, Faculty of Science, Hokkaido University.

Abbreviations. L=body length; mbd=maximum body diameter at swollen esophageal region + at middle part of body (at level of vulva in females); eso=length of swollen esophageal region; t=tail length; v=distance of vulva from anterior end, De Man's ratio V (%) in parentheses; ccd=diameter at base of cephalic capsule; bd=body diameter at constriction just posterior to swollen esophageal region; abd=anal (cloacal) body diameter; amp=amphids, width × length; spic=spicule length, measured along median line, and length of chord in parentheses; gub=gubernaculum length. All measurements are in micra.

Family Dracanemotidae Filipjev, 1918

Cephalochaetosoma n. gen.

Prochaetosomatinae. Nematodes 0.4 to 0.9 mm long. Esophageal region slightly swollen, greatest width in both sexes usually at middle part of body. Head slightly round or truncated anteriorly, without ornamentation, setae present. Annules with or without ornamentation. Somatic setae basically arranged in 8 longitudinal rows at middle part of body. Amphids loop-shaped or spiral. Anterior ambulatory setae 16–30 in number, basically arranged in 6 longitudinal rows posterior to cephalic capsule, transverse rows indistinct; the base of ambulatory setae not particularly swollen, only slightly expanded like usual somatic setae. Buccal cavity rather developed, with a dorsal tooth and 2 weak subventral teeth. Esophagus with cylindrical corpus and a cuticularized basal bulb. Posterior ambulatory setae arranged in 4 longitudinal rows, 2 sublateral and 2 subventral. Tail cylindrical-conoid.

Cephalochaetosoma pacificum n. sp.: Type-species.

Cephalochaetosoma uchidai n. sp.

Cephalochaetosoma n. gen. belongs to the subfamily Prochaetosomatinae Allen et Noffsinger, 1978, revised by Lorenzen (1981, p. 188), on the feature of the buccal armature, esophagus and so on. This genus resembles *Draconomus* Allen et Noffsinger, 1978, in the morphological feature of the anterior ambulatory setae, of which the bases are only slightly expanded (see *Modified Adhesion Tubes* in Allen and Noffsinger, 1978, p. 14). However, it differs from the latter, which is characterized by inverted "U" shaped (staple-shaped) amphids and 8 anterior ambulatory setae, in having loop-shaped to spiral amphids and 16–30 anterior ambulatory setae. The present genus is clearly discernible from all other known genera in the Draconematidae by the greater number of anterior ambulatory

setae without swollen base.

Two species of the *Cephalochaetosoma, C. pacificum* and *C. uchidai,* differ from each other on several characteristics, such as the number of the anterior ambulatory setae, general shape and size of the body, annulation pattern, and shape of the head. With further studies, the present genus may be subdivided into two taxa.

KEY TO THE SPECIES OF *Cephalochaetosoma*

1. Body 0.7–0.9 mm long, with 26–30 anterior ambulatory setae..... ..... *C. pacificum* n. sp.
— Body 0.4–0.5 mm long, with 16–20 anterior ambulatory setae.. *C. uchidai* n. sp.

The generic name alludes to a remarkable character, a great number of anterior ambulatory setae, of this genus belonging to the subfamily Prochaetosomatinae. Gender neuter.

Cephalochaetosoma pacificum n. sp.

(Figs. 2–4)

Measurements. Males (holotype and 4 paratypes, ♂-1, 2, 3, 4): L=892; 770; 800; 831; 884, mbd=47+59; 40+45; 40+55; 44+55; 46+63, eso=186; 178; 191; 176; 190, t=100; 97; 85; 92; 90, bd=28; 24; 24; 24; 26, abd=25; 26; 24; 27; 25, amp=4.2×4.7; 4–5×5, spic=66 (53); 64 (46); 64 (47); 66 (51); 66 (50), gub=22; 15; 17; 21; 19.

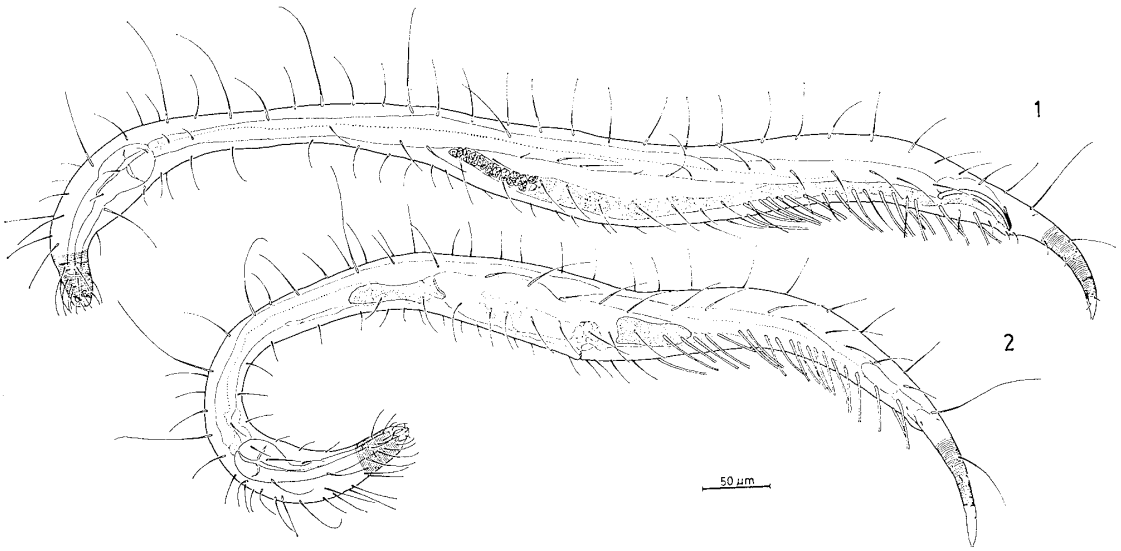

Fig. 2. *Cephalochaetosoma pacificum* n. gen. et n. sp. —— 1. Male (holotype). —— 2. Female (allotype).

Females (allotype and 6 paratypes, ♀-1, 2, 3, 4, 5, 6): L=858; 781; 871; 792; 802; 850; 862, mbd=42+63; 42+50; 43+72; 46+91; 47+104; 47+101; 46+93, eso=189; 184; 181; 200; 198; 217; 211, t=99; 93; 95; 88; 86; 81; 91, v=487 (57); 447 (57); 497 (57); 420 (53); 436 (54); 453 (53); 477 (55), bd=25; 25; 26; 31; 30; 32; 30, abd=18; 17; 17; 20; 20; 19; 20, amp=4.9×4.7; 4-6×4-6.

Male (holotype, range within males in parentheses). Body (Fig. 2-1)[1] basically cylindrical, with slightly swollen esophageal region followed by a narrow portion, plump middle part, and posterior part gradually decreasing in diameter to conical tail end; diameter of esophageal region not greater than that of middle part of body. Cuticle annulated except for anterior part of head (cephalic capsule) and tip of tail (non-annulated tail region), some of annules irregular and incomplete, not so differentiated on whole body, 1.0-2.0 μm wide. Somatic setae basically arranged in 8 longitudinal rows, 2 subdorsal, 4 sublateral and 2 subventral; subventral setae shorter, 4 pairs of long dorso-lateral setae (about 100 μm) present from posterior part of esophageal region to following narrowed cylindrical portion. Mouth opening (Fig. 3-1, 2) surrounded by obscure lips, cephalic setae probably 6+4 in number. Buccal cavity (Fig. 3-3) developed, armed with a dorsal tooth and 2 weak subventral teeth. Amphids conspicuous, loop-shaped, ventral arm slightly elongated, just anterior to the first annule. Twenty-six (26-30?) anterior ambulatory setae arranged in 6 longitudinal rows, 2 subdorsal and 4 sublateral, together with non-adhesive setae (transverse rows obscure, the arrangement, 4·5·4·4·5·4 as shown in Fig. 3-4), the posteriormost seta on the 22nd (19-26th) annule or 1.5 (1.4-1.6) ccd long posterior to cephalic capsule; the base of ambulatory setae not broad, uniformly tapered to distal end, 19-40 μm long. Esophagus equipped with cylindrical corpus and a cuticularized basal bulb, 30 μm wide by 42 μm long. Nerve ring surrounding just anterior to esophageal bulb. Excretory organ indistinct. Testis single, outstretched, in the position to ventral side of intestine. Spicules (Figs. 3-6) paired, arcuate, with a proximal knob. Gubernaculum short, one-third of spicule length (not in chord). Posterior ambulatory setae (Fig. 3-5) arranged in 4 longitudinal rows, 2 sublateral and 2 subventral; the former rows consisting of 14 (11-16) ambulatory setae (abb. A, 32-56 μm) and 7 (7-8) usual setae (abb. U, not more than ambulatory setal length), in order of AUAUAAAUAAUAAAUAAUAUA (right) and AUAAUAAUAAUAAUAAUAAUA (left) from anterior; subventral rows each consisting of 24 (17-27) ambulatory setae (20-47 μm), the anteriormost seta 1.3 and the posteriormost seta 8.2 abd long anterior to cloaca; short somatic setae intermingled with the sublateral ambulatory setae. Short, fragile setae arranged in a longitudinal row between the two subventral rows of ambulatory setae; three setae anterior to cloaca rather longer (Fig. 3-7). Two pairs of cloacal setae uniformly tapered and another short pair of setae present more laterally. Tail gradually tapering, one pair of long setae (69-83 μm) dorso-laterally at cloacal region and another pair of dorsal setae (36-

1) In the present paper, figures are represented in left side view if not stated otherwise.

42 μm) conspicuous at middle of tail. Non-annulated tail region about 21 (19–22)% of tail length, with 3 pairs of short setae. Three caudal glands observed, extending just anterior to cloaca.

Female (allotype). Similar to males (Fig. 2–2). Greatest width at level of vulva. Amphids (Fig. 3–8) more round, loop-shaped. Twenty-eight anterior ambulatory setae arranged asymmetrically, the posteriormost seta near the 23rd annule or 1.5 ccd long posterior to cephalic capsule. Posterior ambulatory setae arranged in 4 longitudinal rows; 2 sublateral rows each consisting of 21 ambulatory setae; 2 subventral rows of 26 right and 27 left ambulatory setae, the anteriormost and posteriormost setae 1.3 and 11.1 abd long anterior to anus, respectively. A weak, short seta present between the posteriormost subventral ambulatory seta and anus. Ovaries paired, opposed and reflexed. Vulva not encircled by any projections, paravulaval setae present. Non-annulated tail region (Fig. 3–10) about 31% of tail length, dorsally with a pair of setae (marks).

Variations. No remarkable difference was found among males, though the number and arrangement of the anterior and posterior ambulatory setae were variable; 6 longitudinal rows of the former setae each consisting of 4–6 ambulaotry setae. Females show similar variation as males about the number of the anterior ambulatory setae, and they are divisible into two forms on a set of characteristics (see Table 2). One form is represented by the allotype and 2 paratypes (♀–1 and 2): Amphids round loop-shaped. The posteriormost anterior ambulatory seta on the 18–23rd annules or 1.5–1.7 ccd long posterior to cephalic capsule. Sublateral rows of posterior ambulatory setae 19–22 in number, and subventral rows of setae 26–29 in number. Non-annulated tail region 31–33% of tail length. While, the other form is represented by 4 paratype females (♀–3, 4, 5, 6), and is characterized as follows, based on the paratype ♀-6: Body remarkably plumped near vulva. Amphids (Fig. 3–9) conspicuous, spiral, 1.5 turns. Anterior ambulatory setae more irregularly arranged in 6 longitudinal rows, each consisting of 3–6 ambulatory setae, the posteriormost seta near the 28th (25–28th) annule or 1.9 (1.9–2.2) ccd long posterior to cephalic capsule. Sublateral rows of posterior ambulatory setae consisting of 13 right and 14 left (12–14 in number, respectively) ambulatory setae, subventral rows 21 (19–23) setae. Non-annulated tail region 37 (34–38)% of tail length.

First- and second-stage juveniles unknown.

Third-stage juveniles.

Measurements. Juveniles (III–1, 2, 3, 4, 5): L=405; 443; 447; 458; 487, mbd=32+25; 34+34; 34+39; 34+36; 35+36, eso=114; 148; 124; 143; 139, t=63; 58; 63; 57; 59, bd=20; 23; 23; 23; 24, abd=14; 14; 17; 17; 18, amp=3–4×3–4.

Juvenile (III–1). Similar to adults (Fig. 4–1). Greatest width at esophageal region. Somatic setae arranged in 5 longitudinal rows at middle part of body, 4 sublateral and 1 dorsal. Buccal cavity (Fig. 4–2) developed, armed with a dorsal

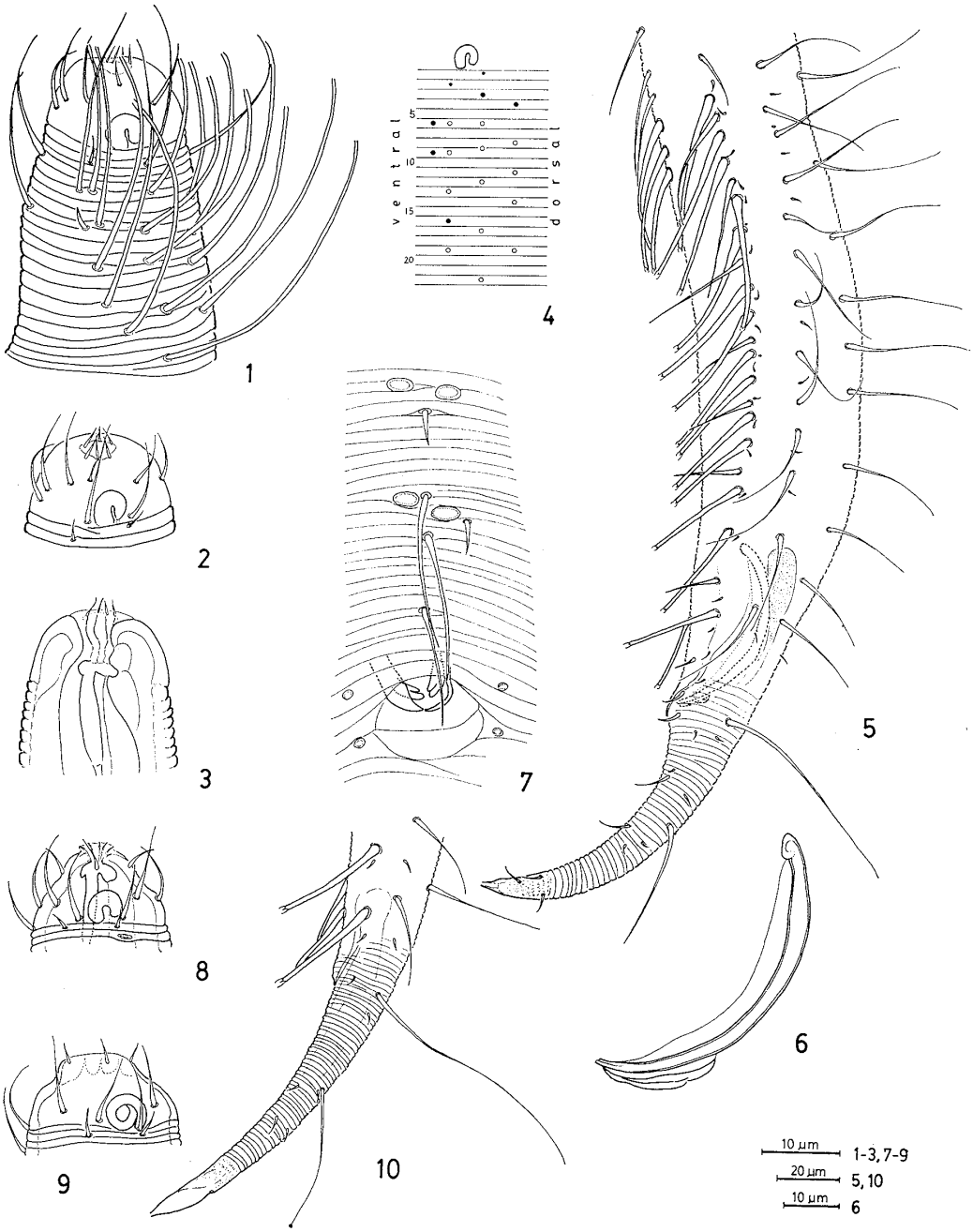

Fig. 3. *Cephalochaetosoma pacificum* n. gen. et n. sp. —— 1–7. Male (holotype); 1–2, head; 3, buccal cavity; 4, arrangement of anterior ambulatory setae (schema, open circles—ambulatory setae, solid circles—non-adhesive setae); 5, posterior end, subventral ambulatory setae in part omitted; 6, spicules and gubernaculum; 7, ventral view of cloacal region. —— 8–10. Female (8, 10, allotype; 9, paratype ♀-6); 8–9, head; 10, tail.

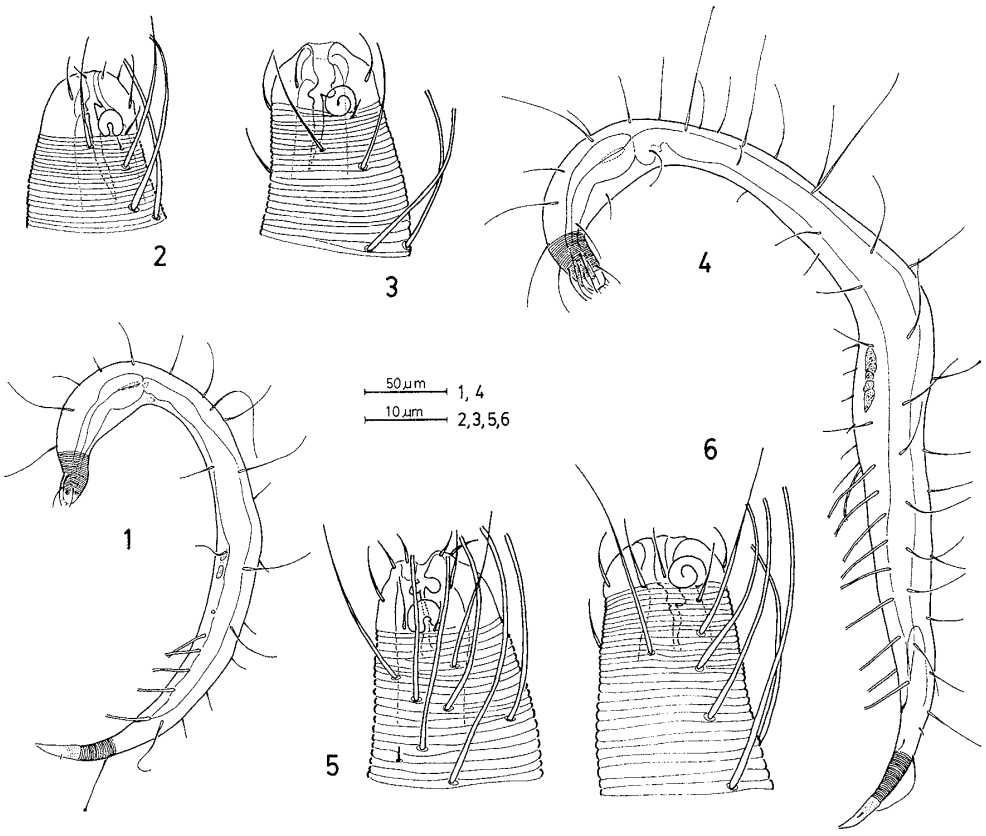

Fig. 4. *Cephalochaetosoma pacificum* n. gen. et n. sp. —— 1–3. Third-stage juvenile (1–2, juv. III-1; 3, juv. III-4); 1, entire body; 2–3, head. —— 4–6. Fourth-stage juvenile (4–5, juv. IV-2; 6, juv. IV-4); 4, entire body, ventral ambulatory setae in part omitted; 5–6, head.

tooth and 2 weak subventral teeth. Amphids conspicuous, loop-shaped. Three ambulatory setae arranged transversely near the 18th annule or 0.8 ccd long posterior to cephalic capsule. Posterior ambulatory setae arranged in 2 sublateral rows, each consisting of 6 setae. Non-annulated tail region about 46% of tail length, dorsally with a pair of minute setae.

Variations. Other 4 juveniles (III–2, 3, 4, 5) differ from juv. III–1 by the following feature. Greatest width at middle part of body. Amphids (Fig. 4–3) conspicuous, spiral. Three ambulatory setae on the 20–24th annule or 1.1–1.4 ccd long posterior to cephalic capsule. Posterior ambulatory setal rows each consisting of 4 setae.

Fourth-stage juvenile.

Measurements. Juveniles (IV–1, 2, 3, 4): L=634; 697; 530; 557, mbd=39+46; 44+46; 36+40; 37+44, eso=154; 162; 152; 165, t=84; 85; 69; 75, bd=24; 27; 23; 24, abd=15; 18; 17; 19, amp=3–5×3–4.

Juvenile (IV–2). Similar to adults (Fig. 4–4). Greatest width at middle part of body. Somatic setae arranged in 7 longitudinal rows at middle part of body, 2 subdorsal, 4 sublateral, and 1 ventral. Amphids conspicuous, loop-shaped. Ten anterior ambulatory setae arranged as shown in Fig. 4–5, 2·2·1·1·2·2; the posteriormost seta on the 20th annule or 1.4 ccd long posterior to cephalic capsule. Posterior ambulatory setae arranged in 3 longitudinal rows, 2 sublateral and 1 ventral; the former rows each consisting of 6 ambulatory setae and the latter consisting of 11 setae. Non-annulated tail region about 39% of tail length, dorsally with a pair of short setae.

Variations. Juvenile IV–1 similar to juv. IV–2 on most characters except for the posteriormost anterior ambulatory seta located on the 21st annule or 1.3 ccd long posterior to cephalic capsule, and ventral row of posterior ambulatory setae consisting of 13 setae. The remaining juveniles IV–3 and 4 remarkably differ from the former juveniles in the following feature: Somatic setae arranged in 8 longitudinal rows at anterior part of plump middle body, 2 subdorsal, 4 sublateral and 2 subventral (juv. IV–3). Eight anterior ambulatory setae arranged as shown in Fig. 4–6, 3·1·1·3; the posteriormost seta on the 29th annule or 1.8–2.0 ccd long posterior to cephalic capsule. Posterior ambulatory setae arranged in 3 rows, 6 sublateral and 11 ventral setae.

Remarks. In the present specimens examined, females have either loop-shaped or spiral amphids, in combination with a set of characters on the number and arrangement of the anterior and posterior ambulatory setae (Table 2). These females might be composed of the representatives of two different species. On the other hand, males are evidently homogeneous on those characters, though it is difficult to decide whether they correspond only with either kind of the females. The

Table 2.
Comparison of some characters among the third- and fourth-stage juveniles, males and females of *Cephalochaetosoma pacificum* n. gen. et n. sp.

Stage	Amphid[1]	Anterior ambulatory setae		Posterior ambulatory setae	
		No.[2]	Distribution[3]	Sublateral	Subventral
Juvenile					
Third I	L	3 (3)	0.8	6	—
II	S		1.1–1.4	4	—
Fourth I	L	10 (6)	1.3–1.4	8	11–13[4]
II	S	8 (4)	1.8–2.0	6	11[4]
Adult					
Male	L	26–30? (6)	1.3–1.7	11–16	17–27
Female I	L		1.5–1.7	19–22	26–29
II	S		1.9–2.2	12–14	19–23

1) L: loop-shaped amphids, S: spiral amphids. 2) Figures in parentheses indicate the number of longitudinal setal rows. 3) Distributional range of the posteriormost seta, ccd long posterior to cephalic capsule. 4) Number of setae in a ventral row.

polymorphism of the amphids related or unrelated to the sex is so far known in some species of the following genera; *Dracograllus* ALLEN et NOFFSINGER, *Draconema* COBB, *Dracotoranema* ALLEN et NOFFSINGER, and *Paradraconema* ALLEN et NOFFSINGER in the Draconematinae, *Dracogaleus* ALLEN et NOFFSINGER, *Notochaetosoma* IRWIN-SMITH, and *Prochaetosoma* MICOLETZKY in the Prochaetosomatinae (see WARWICK, 1977; ALLEN and NOFFSINGER, 1978). It seems reasonable, considering the above matters, to identify all the specimens examined with the representatives of *Cepahlochaetosoma pacificum,* which has two forms of females distinguishable in the shape of the amphids, distributional range of the anterior ambulatory setae, and number of the posterior ambulatory setae. Also in the third and fourth juvenile stages, polymorphic variants are distinguishable by the feature of the amphids, and anterior and posterior ambulatory setae as in the adult stage. Unfortunately it is impossible in this study to clarify the correlation among the variants in each juvenile and adult stages.

Cephalochaetosoma pacificum n. sp. is characterized by the greatest number (26–30 in the adult and 8 or 10 in the fourth juvenile stage) of the anterior ambulatory setae in the previously known draconematid species. The fourth-stage juveniles rather resemble those of *Prochaetosoma cayense* ALLEN et NOFFSINGER, 1978, in the number of the anterior ambulatory setae but differ in the arrangement; *P. cayense* with 8 setae arranged in 2 transverse rows, while *C. pacificum* with 8 or 10 setae in indistinct transverse rows.

Material studied. 5 ♂♂, 7 ♀♀ and 9 juveniles. Holotype ♂, allotype ♀ and paratypes, 4 ♂♂ and 6 ♀♀, as type-series: Station 5–BT–3. 9 juveniles as additional materials: Station 5–BT–3. These specimens were collected from among fibrous coat of a broken coconut.

Cephalochaetosoma uchidai n. sp.

(Figs. 5–6)

Measurements. Males (holotype and 2 paratypes, ♂–1, 2): L=436; 411; 425, mbd=33+41; 34+46; 32+45, eso=117; 110; 114, t=48; 57; 51, bd=20; 20; 17, abd=21; 23; 18, amp=2.7×2.3; 2–3×2–3, spic=43(35); —(—); 34(20), gub=14; —; 12.

Females (allotype and 4 paratypes, ♀–1, 2, 3, 4): L=423; 424; 432; 441; 444, mbd=31+46; 32+46; 32+45; 31+46; 34+48, eso=107; 110; 127; 101; 117, t=48; 45; 46; 54; 46, v=217 (51); 216 (51); 231 (54); 201 (46); 229 (52), bd=20; 19; 20; 18; 21, abd=14; 13; 16; 13; 14, amp=2.9×2.7; 2–3×2–3.

Male (holotype, range within males in parentheses). Body (Fig. 5–1) short, with slightly swollen esophageal region, rather plump and cylindrical middle part, and posterior part gradually decreasing in diameter to conical tail end. Greatest width at middle part of body. Cuticle conspicuously annulated except for anterior part of head and tip of tail, some of annules irregular and incomplete, especially

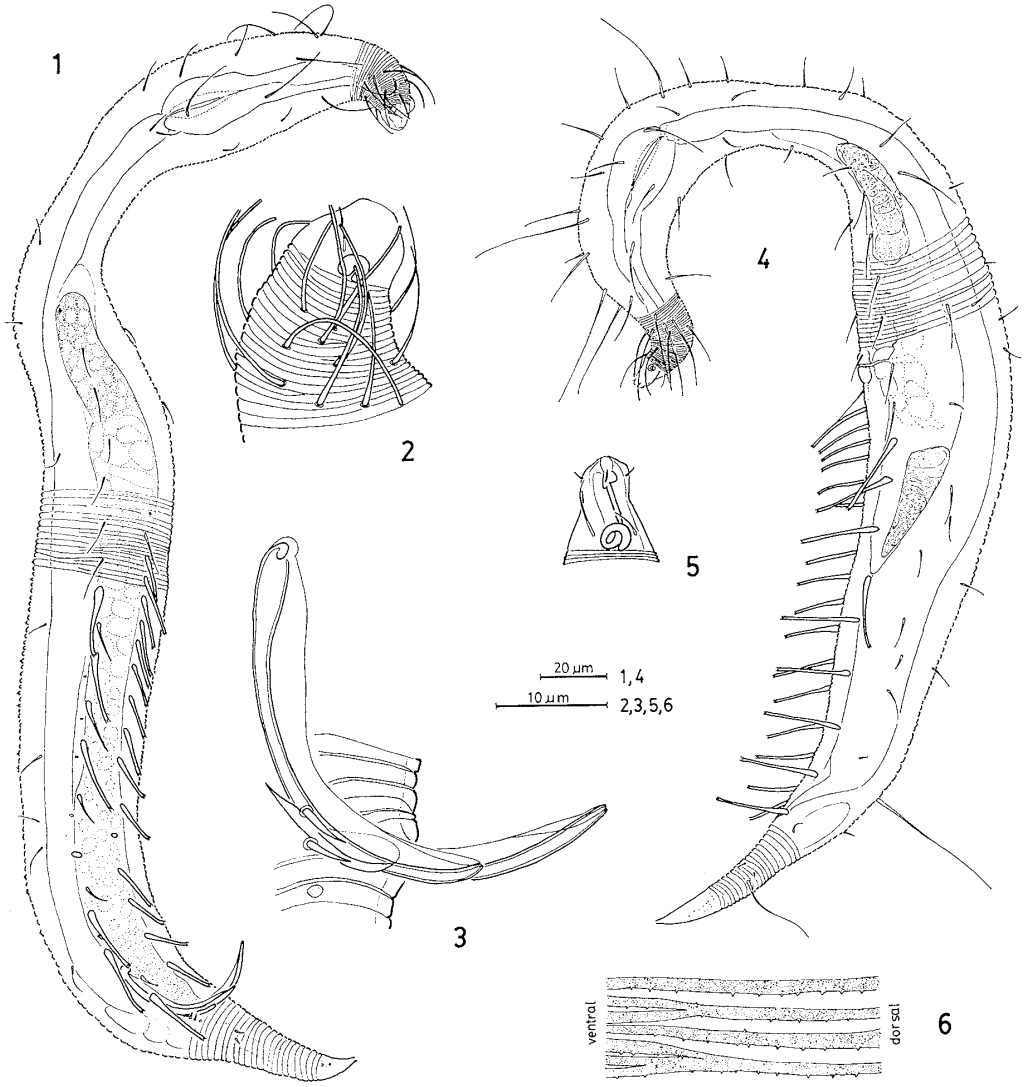

Fig. 5. *Cephalochaetosoma uchidai* n. sp. —— 1–3. Male (holotype, right side view); 1, entire body; 2, head; 3, spicules and gubernaculum. —— 4–6. Female (allotype); 4, entire body; 5, head; 6, cuticular ornamentation at middle part of body.

ramified at middle part of body (see Fig. 5–6); annule width somewhat differentiated, 0.7 μm wide at anterior esophageal region and 1.2–1.9 μm wide on the other part of body. External cuticular ornamentation observed at lateral sides of middle part of body; minute spine-like projections arranged along anterior or posterior margin of annules. Somatic setae short at middle part of body, basically arranged in 8 longitudinal rows, 2 subdorsal, 4 sublateral and 2 subventral. Cephalic sensory organ and buccal cavity not observed, for labial part withdrawn inside (Fig. 5–2). Amphids round, probably loop-shaped, just anterior to the first annule. Anterior ambulatory setae (see Fig. 6–2) obscure in number, probably about 8–9 setae

irregularly arranged in 3 longitudinal rows in each lateral side (up to 21 μm long), the posteriormost seta located at 1.3 (1.0–2.6) ccd long posterior to cephalic capsule. Esophagus with a cuticularized basal bulb, 18 μm wide by 28 μm long. Excretory organ indistinct. Testis single, outstretched. Spicules (Fig. 5–3) paired, arcuate, with a proximal knob. Gubernaculum simple, about one-third of spicule length. Two sublateral rows of posterior ambulatory setae each consisting of 7 (5–7) ambulatory setae (including marks, abb. A: 21–30 μm) and 6 usual setae (abb. U) in order of AUAUAUAUAUAUA from anterior, somatic setae not longer than ambulatory setae. Right and left subventral rows of ambulatory setae consistnig of 15 and 16 (14–19) ambulatory setae (13–21 μm long) respectively, the anteriormost one slightly posterior to the middle of body. Short somatic setae intermingled with the sublateral ambulatory setae. Three pairs of short setae, uniformly tapered, present at lateral sides of cloaca. Tail conical, without long subdorsal setae (probably lost under sampling). Non-annulated tail region about 27 (19–31)% of tail length, with 2 pairs of marks of setae. Caudal glands extending just anterior to level of cloaca.

Female (allotype, range within females in parentheses). Similar to males (Fig. 5–4). Greatest width at level of vulva. Head (Fig. 5–5) narrowed and truncated anteriorly, equipped with 6 minute labial papillae (?) and a circle of 6 short cephalic setae, other setae indistinct. Buccal cavity well developed but not so cuticularized, armed with a dorsal tooth and 2 weak subventral teeth. Amphids spiral, about 1.5 turns. The posteriormost anterior ambulatory seta 2.1 (1.7–2.9) ccd long posterior to cephalic capsule. Right and left sublateral rows of posterior ambulatory setae consisting of 8 and 9 (8–13) ambulatory setae, respectively; right and left subventral ambulatory setae 16 and 17 (14–20) in number, the anteriormost seta just posterior to vulva. Ovaries paired, opposed and reflexed. Vulva near middle of body, not encircled by any projections, paravulaval setae present. Tail cylindro-conical, one pair of long setae (43–69 μm) on dorsal side anterior to anus, and another pair of long setae (28–30 μm) dorsally at middle of tail. Non-annulated tail region about 43 (41–43)% of tail length, without setae.

Variations. Among specimens examined, paratype ♂–2 and ♀–3 apparently vary from the others in having remarkably stout somatic setae on the middle part of the body (Fig. 6–1) and more conspicuous cuticular projections along the margin of annules (Fig. 6–4). The number and arrangement of the anterior ambulatory setae are obscure in all specimes, probably 16–20 setae arranging in 6 irregular longitudinal rows. Posterior ambulatory setae show variations in number within and between two sexes; number of sublateral and subventral ambulatory setae in paratype specimens, respectively, 7 and 14 in ♂–1, 5 and 18–19 in ♂–2, 9–10 and 17–18 in ♀–1, 10–12 and 18–19 in ♀–2, 13 and 14–15 in ♀–3, 10 and 19–20 in ♀–4. Besides the above variations, paratype ♂–2 is equipped with only two pairs of cloacal setae (Fig. 6–3).

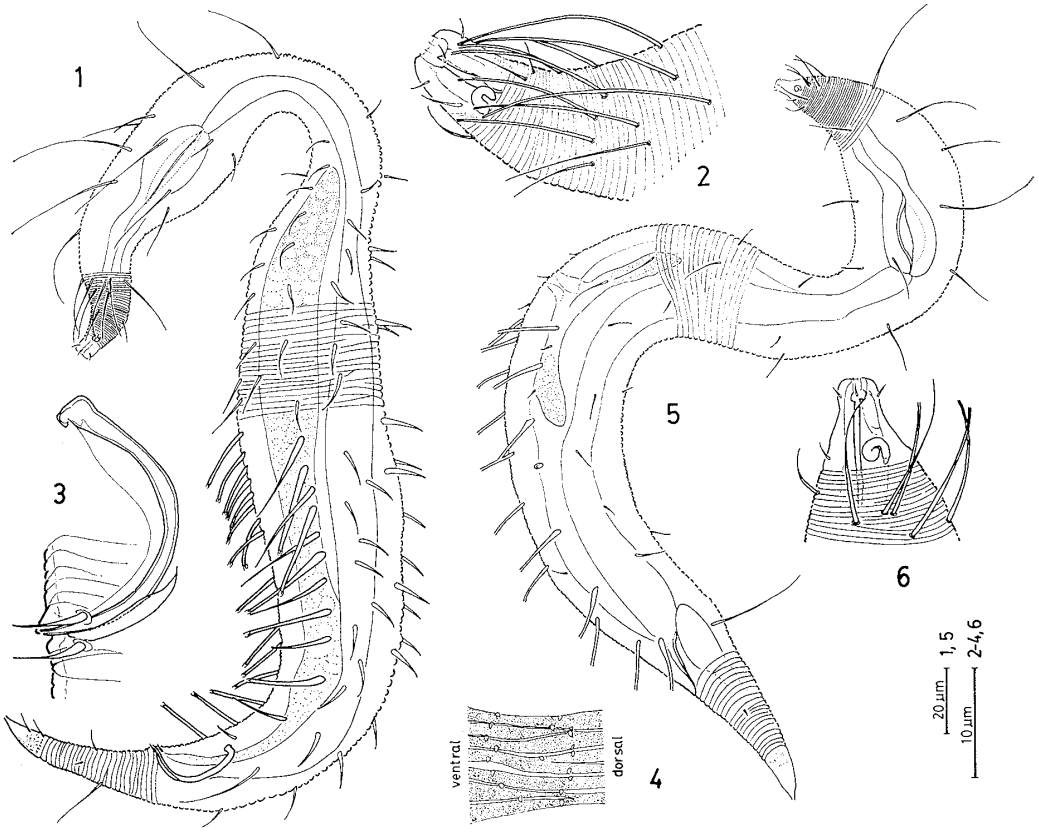

Fig. 6. *Cephalochaetosoma uchidai* n. sp. —— 1–4. Male (paratype ♂-2); 1, entire body, subventral ambulatory setae in part omitted; 2, head; 3, spicules and gubernaculum; 4, cuticular ornamentation at middle part of body. —— 5–6. Fourth-stage juvenile (juv. IV-1); 5, entire body; 6, head.

First-, second-, and third-stage juveniles unknown.

Fourth-stage juveniles.

Measurements. Juveniles (IV–1, 2, 3): L=351; 364; 374, mbd=33+37; 35+39; 31+30, eso=96; 104; 102, t=48; 48; 47, bd=22; 24; 20, abd=19; 18; 19, amp=2×2–3.

Juvenile (IV–1, range within juveniles in parentheses). Body (Fig. 6–5) similar to adults. Greatest width at middle part of body. Somatic setae arranged in 7 longitudinal rows at middle part of body, 2 subdorsal, 4 sublateral and 1 ventral. Head conical and labial part protruded anteriorly, with a circle of 6 short cephalic setae, about 1.4 µm long. Amphids spiral, about 1.5 turns. Six anterior ambulatory setae arranged as shown in Fig. 6–6, 2·1·1·2 (transversely in 2 rows, 10–15 µm long). Posterior ambulatory setae arranged in 3 longitudinal rows, 2 sublateral rows each consisting of 7 ambulatory setae (including a mark, 13–19 µm long), ventral row of 9 ambulatory setae (15–21 µm long). Ovaries slightly developed.

Tail conical, a long seta (30 μm) subdorsally at anal region. Non-annulated tail region 33 (32–36)% of tail length, without setae.

Variation. Non-annulated tail region of juv. IV–3 is equipped with a minute seta subdorsally just posterior to the last annule.

Remarks. The present new species belongs to the genus *Cephalochaetosoma,* because the anterior ambulatory setae, of which the bases are not particularly swollen, are arranged in 6 longitudinal rows on the annules posterior to the cephalic capsule. However, *C. uchidai* apparently differs from the type species, *C. pacificum,* by the short and peculiar shape of the body, rather developed and differentiated cuticle, and the number (16–20) of the anterior ambulatory setae. The fourth-stage juveniles are also different from those of *C. pacificum* in having 6 anterior ambulatory setae arranged in order of 2·1·1·2.

Material studied. 3 ♂♂, 5 ♀♀ and 3 juveniles. Holotype ♂, allotype ♀ and paratypes, 2 ♂♂ and 4 ♀♀, as type-series: Station 5–BT–3. 3 juveniles as additional materials: Station 5–BT–3. These specimens were collected from among fibrous coat of a broken coconut.

The trivial name is in honor of the late Professor Tohru UCHIDA of Hokkaido University.

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